

Puccinia psidii

Puccinia psidii infects several genera and a number of species in the Myrtales, which includes economically important tree crops such as *Eucalyptus* spp, *Pimento officinalis* (allspice), *Psidium guajava* (guava), and *Syzygium aromaticum* (clove). *Puccinia psidii* is endemic to the Americas. Although *Eucalyptus* originated in Australia and the Southeast Asia region, these hosts are susceptible to *P. psidii*. The rust can produce significant yield losses on seedlings and young trees in the New World and is a potential threat to the several million hectares of *Eucalyptus* plantations around the world. Because of this, much effort is going into keeping the rust from spreading to new areas (Coutinho et al 1998). *Puccinia psidii* causes a severe disease of guava infecting leaves, stems and fruits, causing defoliation and mummifying fruits when the infection occurs early. This rust also attacks foliage, inflorescences, and young succulent fruits of *Pimento*, *Eucalyptus* and *Syzygium*.

Puccinia psidii G. Winter

Spermogonia and **aecia** unknown.

Uredinia amphigenous, although mostly hypophyllous, caulicolous, and on flowers and fruits; when on leaves in groups on brownish or blackish spots up to 5 mm diam, subepidermal, becoming erumpent, pale yellow when young, later pale yellow-orange, pulverulent, 0.1-0.5 mm diam; urediniospores globose, ellipsoid to obovoid, 19-27 × 15-26 µm, wall hyaline to yellowish, 1.5-2.5 µm thick, echinulate, germ pores obscure.

Telia similar to uredinia or teliospores in uredinia; teliospores ellipsoid to oblong, rounded at apex, narrow below, slightly constricted at septum, 30-48 × 17-22 µm, wall 1.5-2.5 µm thick at sides, 2-4 µm thick at the apex, pale yellowish, smooth; pedicel, colorless, deciduous.

Hosts: Myrtales in the families Heteropyxidaceae on the genus *Heteropyxis* (Alfenas et al 2005), and Myrtaceae on the genera *Abbevillea*, *Callistemon*, *Calycorectes*, *Campomanesia*, *Eucalyptus*, *Eugenia*, *Jambosa*, *Marlierea*, *Melaleuca*, *Myrcia*, *Myrciaria*, *Phyllocalyx*, *Pimenta*, *Pseudomyrcianthes*, *Psidiopsis*, *Psidium*, *Siphoneugena*, and *Syzygium* (Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved from <http://nt.ars-grin.gov/fungaldatabases/>).

Geographic distribution: *Puccinia psidii* is native to the warmer regions of the western hemisphere. It is reported from Argentina to Florida in the USA. Reports from other areas are unreliable.

Several other rusts have been described on the Myrtaceae. *Phakopsora rossmaniae* Dianese, L.T.P. Santos & D.J. Tessman on *Campomanesia adamantium* (Cambess.) O. Berg from Brazil has uredinia with peripheral paraphyses, while uredinia of *P. psidii* have no paraphyses. *Puccinia cygnorum* R.G. Shivas & J. Walker on *Kunzea ericifoliae* (Sm.) Rchb. ex Heynh. from Australia lacks uredinia and has teliospores measuring 35-60 × 12-20 µm, while *P. psidii* produces uredinia, and has teliospores measuring 30-48 × 17-22 µm. *Uredo seclusa* H.S. Jacks. & Holw. on undetermined Myrtaceae from Brazil has urediniospores with 2-3 super-equatorial germ pores, while in *P. psidii* the germ pores are obscure.

References:

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- Coutinho, T.A., Wingfield, M.J., Alfenas, A.C., and Crous, P.W.** 1998. Eucalyptus rust: a disease with the potential for serious international implications. Pl. Dis. 82: 819-825.
- Hennen, J.F., Hennen, M.M., and Figueiredo, M.B.** 1982. [Index of the rust fungi (Uredinales) of Brazil]. Arch. Inst. Biol. (Sao Paulo), Suppl. 1 49: 1-201.
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- Lindquist, J.C.** 1982. Royas de la Republica Argentina y Zonas Limitrofes. Inst. Nacional de Tecnologia Agropecuaria., 574 pages.

Uredinia of *Puccinia psidii* on bush cherry (*Syzygium paniculatum*) from BPI 843979. Photo: M. Daughtrey, Cornell University Department of Plant Pathology.



Uredinia of *Puccinia psidii* on guava (*Psidium guajava*) from BPI 841098



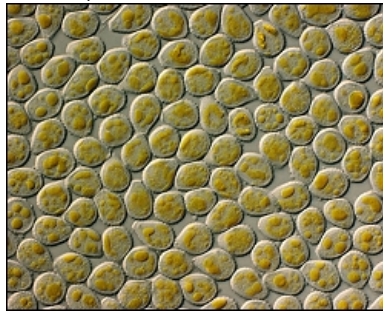
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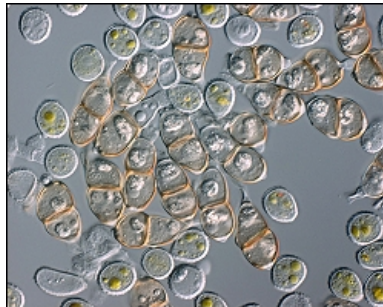
Urediniospores of *Puccinia psidii*, surface view (BPI 843979).



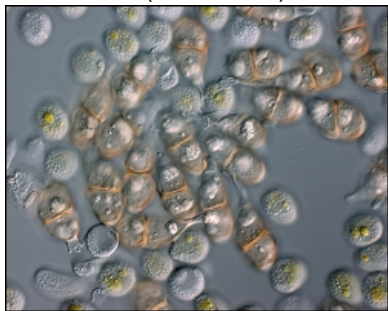
Urediniospores of *Puccinia psidii*, median view (BPI 843979).



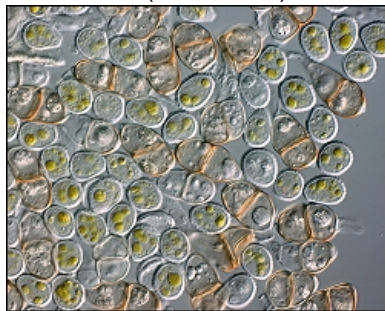
Urediniospores and teliospores of *Puccinia psidii*, median view (BPI 863968).



Urediniospores and teliospores of *Puccinia psidii*, surface view (BPI 863968).



Urediniospores and teliospores of *Puccinia psidii*, median view (BPI 863968).



Urediniospores and teliospores of *Puccinia psidii*, median view (BPI 863968).

